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**STM Spectroscopy of Individual Doping Centers in a Monolayer Organic Crystal** GUEORGUI NAZIN, Department of Chemistry, University of California, Irvine, CA 92697-4575, USA., XIAOHUI QIU, IBM Research Division, T. J. Watson Research Center, Yorktown Heights, New York 10598, USA., WILSON HO, Department of Physics and Astronomy and Department of Chemistry, University of California, Irvine, CA 92697-4575, USA. — A scanning tunneling microscope (STM) is used to study individual Ag doping centers in a monolayer of C<sub>60</sub> molecules supported on a thin Al<sub>2</sub>O<sub>3</sub> film grown on the NiAl(110) surface. The Al<sub>2</sub>O<sub>3</sub> film acts as a spacer reducing the interaction of the C<sub>60</sub> layer with the metal substrate. Vibronic states of the doping centers are observed with differential conductance spectroscopy. Charging of individual doping centers becomes possible upon applying sufficiently high bias voltage to the junction. Differential conductance spectroscopy shows that charging affects the conduction through C<sub>60</sub> molecules located around the doping centers. This effect is used to observe the electrostatic interaction of a pair of Ag doping centers.

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